

REPLACEMENT SHEET

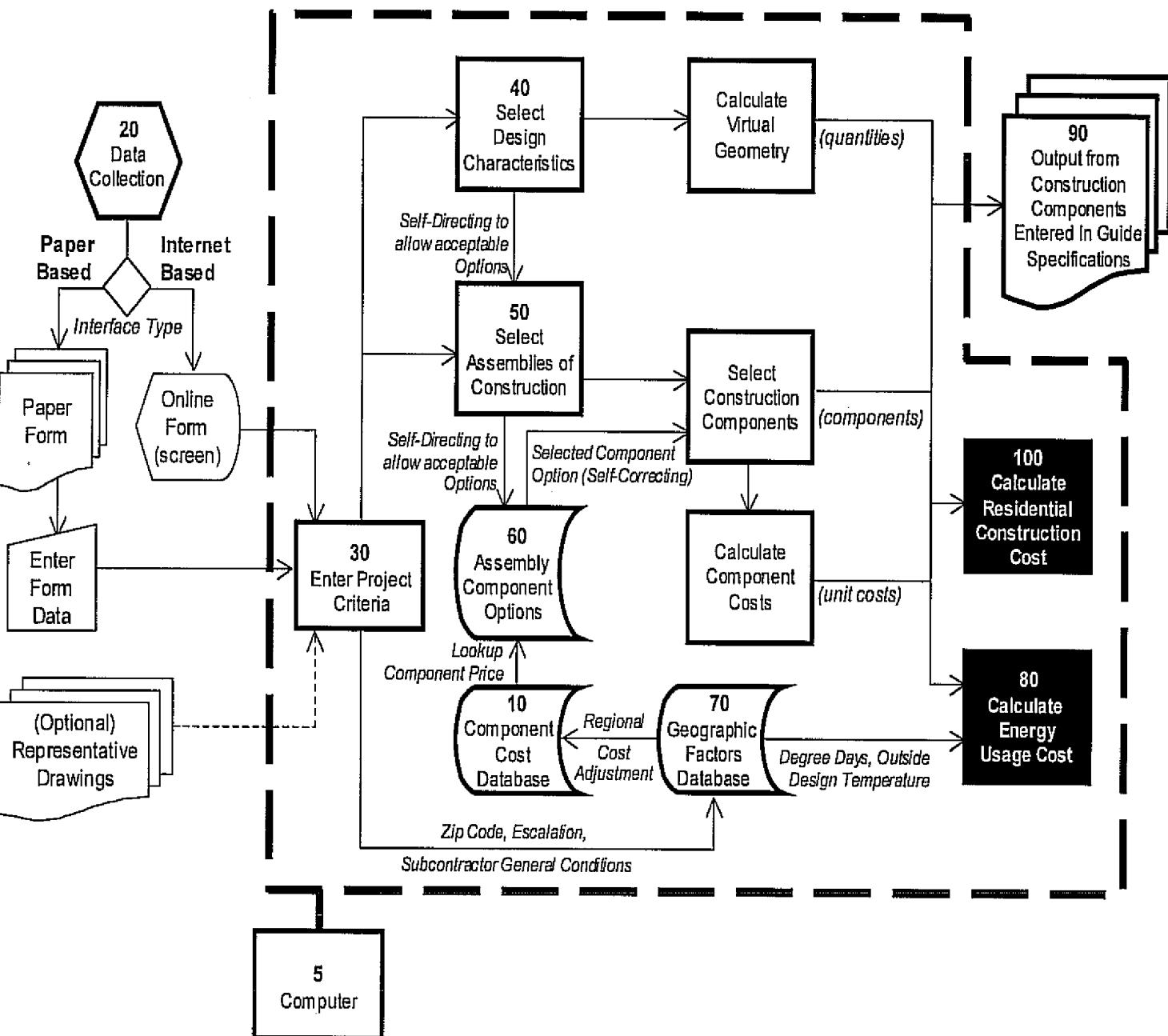


FIGURE 1

REPLACEMENT SHEET

PRICE CATALOG			Location Factor: 0.94	MASTER [BASELINE] RCM			
02 Project Planning & Management, Inc.			Sales Tax: 6.0%	Berrien City, MI			
			Ave Sub Gen'l Conditions: 2%	Cost Adjustments			
System	Description		Base Unit	Adjusted Unit	Loc_Fctr	S_Tax	Sub_GC
l_sprd_ftg	3000 PSI concrete forms, rebar, concr, placing, finish		Cost	Cost	Unit		
1		\$204.00	\$201.35	CY	0.94	3%	2%
sprd_ftg	3000 PSI concrete						
1	Not Req'd (Trench Footing)	\$0.00	\$0.00	LF			
2	12" thick x 18" wide; forms, reinf, direct chute	\$12.06	\$11.90	LF	0.94	3%	2%
3	12" thick x 24" wide; forms, reinf, direct chute	\$13.71	\$13.53	LF	0.94	3%	2%
4	(For Precast Foundations) 12" thick x 24" wide; 3/4" stone bedding	\$2.22	\$2.19	LF	0.94	3%	2%
fdn_drain							
1	PVC 4" dia; gravel drain bed	\$4.00	\$3.95	LF	0.94	3%	2%
2	PVC 6" dia; gravel drain bed	\$5.00	\$4.94	LF	0.94	3%	2%
fdn_wall	4' high foundation wall		(deduct of 4*\$0.70 eliminates 1" rigid insul)				
1	Poured-8"; bitum/damp; sill plates	\$20.44	\$20.17	LF	0.94	3%	2%
2	Poured-10"; bitum/damp; sill plates	\$23.60	\$23.29	LF	0.94	3%	2%
3	Poured-10"; brickledge; bitum/damp; sill plates	\$31.16	\$30.75	LF	0.94	3%	2%
4	Poured-12"; bitum/damp; sill plates	\$26.08	\$25.74	LF	0.94	3%	2%
5	Poured-12"; brickledge; bitum/damp; sill plates	\$33.64	\$33.20	LF	0.94	3%	2%
6	Block-8"; grouted; bitum/damp; parging; sill plates	\$37.84	\$37.35	LF	0.94	3%	2%
7	Block-10"; grouted; bitum/damp; parging; sill plates	\$42.44	\$41.89	LF	0.94	3%	2%
8	Block-12"; grouted; brickledge; parging; bitum/damp; sill plates	\$47.28	\$46.67	LF	0.94	3%	2%
9	Pre-Cast Wall System, bitum/damp; sill plates	\$22.80	\$22.50	LF	0.94	3%	2%
10	ICF (Insulated Concrete Foundation); sill plates	\$32.70	\$32.28	LF	0.94	3%	2%
11	Trench footing/grade beam; 12" poured/reinf; earth formed; no insul	\$21.76	\$21.48	LF	0.94	3%	2%
12	Wood 2x8; 16'OC; CDX sheathing; vapor; 9" insul R-30	\$24.04	\$23.73	LF	0.94	3%	2%

FIGURE 2

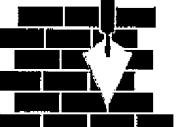
SECTION 7: BUILDING SYSTEMS			
	<i>This final section will explore and document your quality expectations for various building systems in your new home. These decisions are important as they will directly affect the construction budget. In addition, building envelope selections (walls, roof, windows, insulation) will also impact energy heat loss calculations.</i>		
01 Foundation			
011 Standard Foundations			
<input type="checkbox"/> Sand/Gravel Soil	<input type="checkbox"/> Sand/Clay Soil	<input type="checkbox"/> Problem Soils (e.g., water; low soil bearing capacity)	
02 Substructure			
021 Slab on Grade			
<input type="checkbox"/> 4" thick (standard)	<input type="checkbox"/> 5" thick	<input type="checkbox"/> 6" thick	
022 Excavation: Basement			
<input type="checkbox"/> No Basement	<input type="checkbox"/> Crawlspace		
<input type="checkbox"/> Full Basement	<input type="checkbox"/> Partial Bsmt (some of Ground Floor living area on slab)		
023 Basement Walls			
Wall Material	<input type="checkbox"/> Poured concrete <input type="checkbox"/> Concrete block/parging <input type="checkbox"/> Wood foundation		
<input type="checkbox"/> "Superior" Precast Foundation Wall System w/1" insulation			
Waterproofing	<input type="checkbox"/> Standard Protection <input type="checkbox"/> Premium Protection		
Insulation	<input type="checkbox"/> None <input type="checkbox"/> 1" Rigid (R-5) <input type="checkbox"/> 2" Rigid (R-10) <input type="checkbox"/> 3" Rigid (R-15)* (recommended)		
*Energy Star			
03 Superstructure			
031 Floor Construction			
NOTE: Priced from least to most expensive per SF of floor system (left to right)			
<input type="checkbox"/> 1 Composition "I" Joists (Standard spans to 24') * 1" x 3" Ceiling furring not required	<input type="checkbox"/> 2 Dimension lumber (e.g. 2x12) (Standard spans to 19') * Material readily available	<input type="checkbox"/> 3 Truss Joists (Standard spans to 24') * Utilities easily pass through	
			
032 Roof Construction			
House	<input type="checkbox"/> SIP / Timber Frame	<input type="checkbox"/> Prefab trusses	<input type="checkbox"/> Dimensional lumber (e.g. 2x10)
Garage	<input type="checkbox"/> SIP / Glu Lam Ridge Beam	<input type="checkbox"/> Prefab trusses	<input type="checkbox"/> Dimensional lumber (e.g. 2x10)
Dormers	<input type="checkbox"/> SIP	<input type="checkbox"/> Dimensional lumber (e.g. 2x8)	
SIP Thickness	<input type="checkbox"/> SIP Not Used	<input type="checkbox"/> 8.25" OSB/OSB (R-34)	<input type="checkbox"/> 10.25" OSB/OSB (R-42)
	<input type="checkbox"/> 4.5" OSB/OSB (R-18)	<input type="checkbox"/> 6.5" OSB/OSB (R-27)	<input type="checkbox"/> 12.25" OSB/OSB (R-45)
SIP Interior Finish	<input type="checkbox"/> 1/2" Gypsum Board	<input type="checkbox"/> Tongue & Groove "T&G" (pine or cedar)	
033 Stair Construction			
Basement Stair	<input type="checkbox"/> Basement stairs, open riser	<input type="checkbox"/> Pine treads/risers, box stairs, WALLS 2 SIDES/handrail only	
		<input type="checkbox"/> Pine treads/risers, box stairs, balusters/handrail, newel post	
Ground Floor Stair	<input type="checkbox"/> Pine treads / risers (pine), box stairs, balusters/handrail, newel post		
	<input type="checkbox"/> Hardwood treads / risers, box stairs, WALLS 2 SIDES, balusters/handrail, newel post		
	<input type="checkbox"/> Hardwood treads / risers, box stairs, balusters/handrail, newel post		
	<input type="checkbox"/> Curved stairway (hardwood), open 1 side	<input type="checkbox"/> Curved stairway (hardwood), open 2 sides	
Auxiliary Stair	<input type="checkbox"/> None	<input type="checkbox"/> Attic stair; folding; pine; 8'-6"	
	<input type="checkbox"/> Pine treads / risers (pine), box stairs, handrail, newel post	<input type="checkbox"/> Spiral stairs, oak	
	<input type="checkbox"/> Hardwood treads / risers, box stairs, handrail, newel post	<input type="checkbox"/> Spiral stairs, metal	

FIGURE 3

REPLACEMENT SHEET



FIGURE 4

Enter:	State	Residential Energy Code	State Mandate	Comments
MI	Michigan	Michigan Uniform Energy Code Part 10 Rules, less stringent than 1992 MEC	Yes	Prior to June 22, 1977, the state of Michigan had no building energy efficiency requirements. On July 27, 1995, the state adopted ANSI/ASHRAE/IES Standard 90.1-1989 statewide. SB 719, signed in early January 1996, repealed the 1995 adoption of the 1993 MEC. The legislation directed the state construction code commission to, by April 1, 1997, provide cost-effective standards and establish a program to provide home buyers with energy rating information. The Michigan Uniform Energy Code Part 10 Rules were adopted March 31, 1999.

Envelope Heat Loss	Area (SF)	R-Value	U Factor	Delta T	Heat Loss (BTUH)	
Heat Loss-Basement Walls	1,821	6	0.16	22	6,359	3 97.5%-99% Design Dry Bulb Temp (deg F)
Heat Loss-Basement Floor (or Ground Flr Slab)	3,196	25	0.04	22	2,814	72 Indoor Design Temp (deg F)
Heat Loss-Walkout Wall	1,500	14	0.07	69	7,555	69 Delta T
Heat Loss-Walls	448	14	0.07	69	2,206	
Heat Loss-Windows (low-E) Default (R-3)	595	3	0.33	69	13,455	
Heat Loss-Windows Standard Glazing (R-2)	0	2	0.50	69	-	
Heat Loss-Windows (low-E) Triple Glaze (R-6)	0	6	0.17	69	-	
Heat Loss-Doorwalls	126	3	0.33	69	2,898	
Heat Loss-Doorwalls	0	3	0.33	69	-	
Heat Loss-Doors	84	5	0.20	69	1,159	72,113 Total BTUH Demand
Heat Loss-Roof SIP (on Timber)	1,283	36	0.03	69	2,439	1.4 Furnace Sizing Factor
Heat Loss-Roof SIP (on SIP)	0	0	0.00	69	-	127,000 Furnace Size at 90%
Heat Loss-Attic (Uninsulated Roof Rafters)	547	16	0.06	69	2,383	Meets Energy Star:
Heat Loss-Skylights	0	3	0.33	69	-	113,000 Furnace Size at 90%
						108,000 Furnace Size at 94%
						101,000 Furnace Size at 100% (ELECTRIC)
					Building Envelope Heat Loss	41,260 BTUH

Envelope Tightness

Select > 4 Energy Star Very Tight 0.25 ACH (Air Changes / Hour) Design Occupancy: 5

Infiltration / Ventilation	CFM	ACH	Constant	Volume	Delta T	Heat Loss (BTUH)	
atural Infiltration	303	0.25	1.08	72,764	69	22,593	
mechanical Ventilation w/AAUX	424	0.35	1.08	72,764	18	8,251	
75% AAUX Efficiency	141.09	Min Target CFM					

Envelope + Infiltration Heat Loss = 72,113 BTUH

Furnace AFUE = 99% 2 <Select Furnace Eff.

Natural Gas	10 therms (10mcf) = 1,000,000 BTU's
Electricity	293 KWH = 1,000,000 BTU's
Propane	10.9 Gallons = 1,000,000 BTU's
Heating Oil	7.21 Gallons = 1,000,000 BTU's

Furnace Size = 60,126 BTUH

D = Degree Days = 6,439 Berrien City, MI (per National Climatic Data Center)

T = Temp diff = 69 degrees

V = Fuel value = 1,052 BTUh per cu ft natural gas

V = Fuel value = 91,743 BTUh per Gallon propane

V = Fuel value = 3,413 BTUh per KWH electric

CF1 = 1.36 Correction factor that includes the effects of rated full load efficiency, part load performance, over sizing and energy conservation devices.

CF2 = 0.71 Empirical correction factor for heating effect versus 65 degrees F degrees-days.

E = Annual Energy Consumption = 164,715 cu ft natural gas \$0.58 cost per therm NGAS

1,089 gallons of propane \$0.0058 cost per CF of nat gas

- KWH of electricity (100% Efficiency) \$0.95 cost per gallon Propane

\$0.075 cost per KWH of Electricity (Assumes Average Off Peak and Peak)

Annual Heating Cost = \$955.35 NGAS

Annual Heating Cost = \$1,794.32 PROPANE

Annual Heating Cost = \$0.00 ELECTRIC

FIGURE 5

REPLACEMENT SHEET

ME SPECIFIC QUALITY / COST SELECTIONS

237 System Selections
 2002 Project Planning & Management, Inc.

Selection
 Switches

TOTAL FINISHED AREA: 4,770 SF
 TOTAL CONSTRUCTED AREA: 8,353 SF

MASTER (BASELINE) RCM
 Basement: CIV. / M
 1 Bedroom / 5 Bath

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BASELINE

TOTAL
 Savings

SYSTEM	SUBSYSTEM	ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT \$	TOTAL \$	BASELINE	TOTAL SAVINGS
01 Foundations									
	011 Standard Foundations	011.10	Spread footings (timber columns)	1	(2' thick x 30' x 30') forms, rebar, concrete	9	NCOLS	\$46.61	\$419
	011.10	Spread footings (lally columns)	1	12" thick x 30' forms, rebar, concrete	5	EA	\$46.61	\$233	\$233
	011.20	Spread footings (foundation walls)	4	12" thick x 24" wide; forms, reinf, direct chafe	43	LF	\$13.63	\$562	\$562
	011.20	Spread footings (basement walls)	5	12" thick x 24" wide; forms, reinf, direct chafe, PVC 6" gravel drained	352	LF	\$18.47	\$6,506	\$6,506
	011.30	Foundation Wall (4' high)	1	Poured-8", bitum/damp; sill plates	230	LF	\$20.17	\$4,640	\$4,640
	011.40	Excavation: Foundation Wall Footing	2	4' depth spread ftg excav; sand/gravel; backfill; no compctn; rough grade	345	SF	\$0.39	\$135	\$135
	012 Special Foundations	1	No additional special foundations	345	SF	\$0.00	\$0	\$0	\$0
02 Slab on Grade									
	021.00	Ground Floor Slab on Grade	3	Not Used	0	SF	\$0.00	\$0	\$0
	021.00	Garage Floor Slab on Grade	1	4" slab w/4" gravel base; 6 mil vap; expan mat; W1.4/W1.4; steel trowel finish	864	SF	\$2.69	\$2,328	\$2,328
	021.00	Basement Slab on Grade	3	4" slab w/4" gravel base; 6 mil vap; expan mat; W1.4/W1.4; steel trowel finish	3,198	SF	\$2.69	\$8,617	\$8,617
	021.10	Basement Slab Insulation	1	Not Used	0	SF	\$0.00	\$0	\$0
	022 Excavation: Basement	3	Walkout: Sand & gravel excav; backfill; compaction 8' lifts; rough grade	1,066	CY	\$5.75	\$6,125	\$6,125	
	022.00	Off Site Trucking	1	Assumes off-site hauling NOT required (Assumes on site placement of spoils)	0	CY	\$0.00	\$0	\$0
023 Basement Walls									
	023.00	Poured-8" Basement Wall Framing	1	Poured-8", bitum/damp; sill plates	1,821	BWA	\$5.30	\$9,643	\$9,643
	023.10	Basement Wall Insulation	1	Not Used	0	BWA	\$0.00	\$0	\$0
		1	None	1,821	BWA	\$0.00	\$0	\$0	\$0

Baseline Selections

ME SPECIFIC QUALITY / COST SELECTIONS

237 System Selections
 2002 Project Planning & Management, Inc.

Selection
 Switches

TOTAL FINISHED AREA: 4,770 SF
 TOTAL CONSTRUCTED AREA: 8,353 SF

MASTER (BASELINE) RCM

P21

BASELINE
 TOTAL

Savings

SYSTEM	SUBSYSTEM	ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT \$	TOTAL \$	BASELINE	TOTAL SAVINGS
01 Foundations									
	011 Standard Foundations	011.10	Spread footings (timber columns)	1	(2' thick x 30' x 30') forms, rebar, concrete	9	NCOLS	\$46.61	\$419
	011.10	Spread footings (lally columns)	1	12" thick x 30' forms, rebar, concrete	5	EA	\$46.61	\$233	\$233
	011.20	Spread footings (foundation walls)	4	12" thick x 24" wide; forms, reinf, direct chafe	43	LF	\$13.63	\$562	\$562
	011.20	Spread footings (basement walls)	5	12" thick x 24" wide; forms, reinf, direct chafe, PVC 6" gravel drained	352	LF	\$18.47	\$6,506	\$6,506
	011.30	Foundation Wall (4' high)	1	Poured-8", bitum/damp; sill plates	230	LF	\$20.17	\$4,640	\$4,640
	011.40	Excavation: Foundation Wall Footing	2	4' depth spread ftg excav; sand/gravel; backfill; no compctn; rough grade	195	SF	\$0.39	\$77	(\$35)
	012 Special Foundations	1	No additional special foundations	195	SF	\$0.00	\$0	\$0	\$0
02 Slab on Grade									
	021.00	Ground Floor Slab on Grade	3	Not Used	0	SF	\$0.00	\$0	\$0
	021.00	Garage Floor Slab on Grade	1	4" slab w/4" gravel base; 6 mil vap; expan mat; W1.4/W1.4; steel trowel finish	864	SF	\$2.69	\$2,328	\$2,328
	021.00	Basement Slab on Grade	3	4" slab w/4" gravel base; 6 mil vap; expan mat; W1.4/W1.4; steel trowel finish	3,198	SF	\$2.69	\$8,617	\$8,617
	021.10	Basement Slab Insulation	1	Not Used	0	SF	\$0.00	\$0	\$0
	022 Excavation: Basement	3	<RESELECT> Must Select 1 or 2-Full Basement Option	1,066	CY	<RESELECT>	#VALUE!	\$6,125	#VALUE!
	022.00	Off Site Trucking	1	Assumes off-site hauling NOT required (Assumes on site placement of spoils)	0	CY	\$0.00	\$0	\$0
023 Basement Walls									
	023.00	Poured-8" Basement Wall Framing	1	Poured-8", bitum/damp; sill plates	3,171	BWA	\$5.30	\$16,792	\$16,792
	023.10	Basement Wall Insulation	1	Not Used	0	BWA	\$0.00	\$0	\$0
		1	None	3,171	BWA	\$0.00	\$0	\$0	\$0

Alternate Selections illustrating self documenting line item changes to component costs and Self-Correcting feature (Line 022 Basement Excavation) wherein 'ERROR' was triggered when 'Walkout Basement' was deselected in '40 Design Characteristics, requiring selection of Full Basement excavation options.

FIGURE 6

REPLACEMENT SHEET

REPLACEMENT SHEET

**Residential Cost Estimation
Construction Summary
"Component Options"**

- Control Document that provides outline construction descriptions of the building systems as selected by the Owner.
- Serves a similar purpose as site and engineering drawings would provide in that scope and construction requirements are called out for site, structural, mechanical, electrical and plumbing systems.
- Controls which material options are to be selected in cases where options exist in the guide spec sections.

**Guide Specifications
CSI MASTERFORMAT
Divisions 1-16**

- Detailed Guide Specifications including all 16 CSI Divisions
- Division 1 - General Requirements
- Division 2 - Site Construction
- Division 3 - Concrete
- Division 4 - Masonry
- Division 5 - Metals
- Division 6 - Wood And Plastics
- Division 7 - Thermal And Moisture Protection
- Division 8 - Doors And Windows
- Division 9 - Finishes
- Division 10 - Specialties
- Division 11 - Equipment
- Division 12 - Furnishings
- Division 13 - Special Construction
- Division 14 - Conveying Systems
- Division 15 - Mechanical
- Division 16 - Electrical

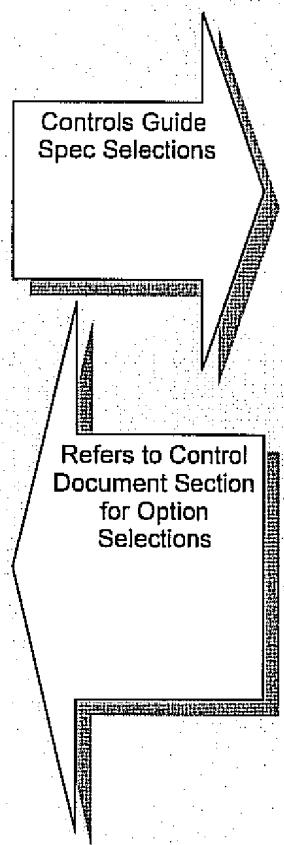


FIGURE 7